Software Configuration Management

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Software Configuration for a New Installation

Configuration tasks for a first-time installation of TeraScan are enumerated in this section. Keep in mind, however, that the tasks required for your particular system will depend on your system's intended purpose (acquisition, processing only, and so forth).

In order to carry out the software configuration tasks described here, you will need to log in as a TeraScan user (a user whose account has been cloned via *make_tsuser*).

Using the TeraScan Configuration Editor

The majority of the software configuration required on your system will be carried out using the TeraScan Configuration Editor. You can start the Configuration Editor from the TeraScan Launchpad or you can start it by entering **tkconfig&** at the command line.

Help for the Configuration Editor is available via the Configuration Editor's various Help buttons.

Checking (and Modifying) Telemetry Chains and Hardware Specifications

A *telemetry chain* is an enumeration of the hardware involved in the acquisition of a given telemetry and the type of scheduling used for that telemetry. Multi-telemetry systems require a separate telemetry chain for each acquired telemetry. Other hardware specifications are also required. All this information is kept in a system configuration file.

During a new installation of TeraScan, a default system configuration file is created for your system. The file is based on the telemetries and antenna size you selected during the installation process. The file may require some modification, however, to reflect the actual hardware configuration of your system.

To check or modify the telemetry chains or hardware specifications of the system configuration file, use the Configuration Editor.

If necessary, consult your *System Operations Manual Supplement,* in particular the System Configuration drawing and the As-Built Parts List provided in that manual, to determine your system configuration and find the part numbers, component descriptions, and device names you need to verify that hardware items are correctly specified on the hardware inventory cards of the Configuration Editor.

Setting up the Pass Table

A TeraScan system that will be acquiring raw data directly from the satellite or handling raw data passed to it from another acquisition system, will require disk space configured for the storage of the raw data.

This raw-data storage area, called the *pass disk,* is a group of UNIX files[1], each of which has been designated to store a particular telemetry type (or types) and has been allotted a certain amount of disk space appropriate to accommodate the largest passes for the specified telemetry. The number of files in the directory and the telemetry designations of the files will determine the number of passes for a given telemetry that can be stored on the disk at any one time.

The configuration of the pass disk is specified by the *pass table*. The pass table can be edited from the **Pass Table** panel of the Configuration Editor. For help in editing the pass table, use the **Help** button on the **Pass Table** panel.

A user who intends to edit the pass table must have read, write, execute permissions to the directory where the raw data files reside. Thus, if the System Administrator intends that all TeraScan users should be able to edit the pass table, the directory must be assigned to the **terascan** group and given 775 permissions (rwx for the owner, and rwx for the group).

Setting Up TeraPGS Directories and their Environment Variables

In order to run the TeraScan Product Generation System (TeraPGS) on your system, you will need to make three TeraPGS directories. You will then need to enter the directory information into the system configuration file and also the **tscan.login** file, as explained in this section. If you need further explanation of TeraPGS, please see the online *TeraPGS User's Manual*, which is accessible from the TeraScan Launchpad.

The directories you need to make are:

- the **Data Directory**, where datasets produced by **pgs_ingest** reside temporarily while awaiting TeraPGS processing.
- the **Work Directory**, where intermediary work files are placed temporarily during TeraPGS processing.
- the **Spool Directory**, where final TeraPGS products are held temporarily while awaiting distribution.

1. Raw partitions can still be used for raw data storage, as they were in earlier versions of TeraScan, but are not recommended.

Disk Space Requirements

Keep in mind the disk space required for these directories when considering where to locate them on your system (Table 1). The **Data Directory** requires a lot of disk space. SeaSpace recommends at least 2 GB per telemetry chain, except for GVAR which requires almost 3 GB per telemetry chain. Be aware that a system can have more than one telemetry chain per telemetry. For example, you can have multiple GVAR telemetry chains.

The **Work Directory** should be twice the size of the largest raw pass expected times four (to accommodate four passes). The **Spool Directory** should be at least 1 GB. Another consideration when locating the **Spool Directory** and **Work Directory** is that these directories ideally should be on separate logical disks.

Table 1: Disk Space Required for TeraPGS Directories

	per HRPT chain	per GVAR chain
Data Directory (DATADIR)	2 GB	3 GB
Work Directory (PGSWORKDIR)	125 MB x 4 passes = 500 MB	650 MB x 4 passes = 2.6 MB
Spool Directory (PGSSPOOL)	500 MB	1 GB
Total space req.	3 GB	6.6 GB

The recommendations shown in Table 1 are general guidelines. The actual disk space required for these directories will also depend on the amount of processing your site is engaged in. Your site may be able to get away with less disk space, or may require more. The bottom line is, the more disk space you have, the better.

Specifying TeraPGS Directories in the System Configuration File

Once you have created the TeraPGS directories, you will need to specify these directories in the system configuration file. To do this, use the **PGS** panel of the Configuration Editor. The **Help** button on the **PGS** panel will tell you how to use the panel.

You may also wish to modify the scrub criteria for the Data Directory. This can also be done from the **PGS** panel of the Configuration Editor. A maximum amount of disk space is allotted to each telemetry stored in the Data Directory. The directory is then scrubbed (files removed, oldest first) to meet those size limitations. A default size is pre-set for each telemetry based on the data rate of the sensor and the maximum time length of the passes for the type of telemetry.

Setting TeraPGS Directory Environment Variables in tscan.login

In addition to specifying TeraPGS directories for the system configuration file, you will need to set TeraPGS environment variables for the directories in **$PASSDIR/tscan.login**.

To set environment variables for the TeraPGS directories:

1. Become root (superuser)

   ```
   % su -
   ```

2. Change directories to $PASSDIR:

   ```
   # cd $PASSDIR
   ```

3. Open the **tscan.login** file with a text editor, for example, **vi**.

4. Once in the **tscan.login** file, edit the following lines, replacing <directory path> with the full path to the appropriate directory:

   ```
   #setenv DATADIR <directory path to Data Directory>
   #setenv PGSSPOOL <directory path to Spool Directory>
   #setenv PGSWORKDIR <directory path to Work Directory>
   ```

5. Remove the # at the beginning of each of the three lines.

6. Save and close the **tscan.login** file.

7. Source the **tscan.login** file:

   ```
   #source tscan.login
   ```

8. Exit root:

   ```
   # exit
   ```

Setting an Environment Variable for GOES Sounder Data

Raw Sounder data from the GOES satellites is written to and temporarily stored in a ring buffer file as it is captured by the TeraScan system.

On a system that will be processing GOES Sounder data, an environment variable must be specified for the Sounder ring buffer file in the **$PASSDIR/tscan.login** file.

To set the environment variable for the Sounder ring buffer file:

1. Become root (superuser):

   ```
   % su -
   ```

2. Change directories to $PASSDIR:

   ```
   # cd $PASSDIR
   ```

3. Open the **tscan.login** file with a text editor, for example, **vi**.
4. Once in the **tscan.login** file, find the following line:

   ```
   #setenv SOUNDER_FILE
   ```

5. At the end of the line, type in a space followed by the full path and file name of the ring buffer file. Also remove the comment symbol (#) from the front of the line.
6. Save and close the **tscan.login** file.
7. Source the **tscan.login** file:

   ```
   # source tscan.login
   ```

8. Exit root:

   ```
   # exit
   ```

Setting waitd Parameters

waitd is a daemon that watches a user-specified directory for data delivered to the system from an outside source. After the data arrives, **waitd** will initiate data-handling or processing scripts. One possibility is that **waitd** can be used to route data into TeraPGS, thus enabling automatic data processing and distribution on processing-only systems.

In order to run **waitd** on your system, you will need to specify (1) the directory where the incoming data is to be placed, (2) the filename template of the datasets that **waitd** must watch for, and (3) the scrub criteria to be applied to the directory.

Use the **waitd** panel of the TeraScan Configuration Editor to specify **waitd** parameters. Use the **Help** button on the **waitd** panel of the Configuration Editor to get help in setting **waitd** parameters.

Scheduling Data Capture

If your system is an acquisition system, you will need to set up automated data capture. For most telemetries, this is done using the TeraCapCon GUI. You can start TeraCapCon from the TeraScan Launchpad, or you can start it by entering **teracon&** at the command line.

Help for TeraCapCon is available through the GUI's various Help buttons. You can also refer to the online *TeraCapCon User's Manual* for instructions on data scheduling; you can open this manual from the TeraScan Launchpad.

The two exceptions to TeraCapCon scheduling are (1) continuous WEFAX reception and (2) continuous GVAR reception, each of which is specified by the **Scheduler** parameters in the telemetry chain specifications for these two telemetries. Use the Configuration Editor to set the **Telemetry Chain Scheduler** parameters for continuous scheduling of GVAR or WEFAX.

Verifying System Date and Time

Verify that system date and time are correct. Update them, if necessary.

Please see your *TeraScan System Operations Manual* for the procedures that apply to your system and situation.

Supplying Latitude/Longitude Coordinates of System Location

You may need to supply latitude/longitude coordinates of your system location. This is required if the system has been moved from another location and is not running **whereami** (which automatically updates date and time from the GPS).

See your *TeraScan System Operations Manual* for the procedures that apply to your system and situation.

Updating Orbital Elements, if necessary

A TeraScan acquisition system requires current orbital elements to operate correctly. You may need to update your system's orbital elements.

See your *TeraScan System Operations Manual* for the procedures that apply to your system and situation.

Software Configuration Following an Upgrade

Upgrading from TeraScan 2.6

Most Previous Software Configuration Is Conserved

If you are upgrading to TeraScan 3.1 from TeraScan 2.6, the existing pass table, data-capture schedule, and xtuser account on your system were automatically conserved during the installation process. Therefore you should have no need to redo or modify their configuration unless you are changing other aspects of your system in addition to the TeraScan 3.1 software upgrade.

Modification of Telemetry Chains May Be Necessary

You may, however, need to modify the telemetry chains created as defaults for your system during installation (see Checking (and Modifying) Telemetry Chains and Hardware Specifications on page 2).

Checking Your Software Configuration

You can, if you wish, also use the TeraScan Configuration Editor to verify that the pass table is correct (use the **Pass Table** panel of the Configuration Editor for this). And you can use TeraCapCon to check your data-capture schedule (for instructions, see the online *TeraCapCon User's Manual*; this manual is accessible from the TeraScan Launchpad).

Will Your System Be Running TeraPGS?

In order to run the TeraScan Product Generation System (TeraPGS) on your system, you will need to set up TeraPGS directories and environment variables for them (see Setting Up TeraPGS Directories and their Environment Variables on page 3).

Will Your System Be Processing GOES Sounder Data?

If your system will be processing GOES Sounder data, you will need to set an environment variable for the ring buffer file that stores the incoming data (see Setting an Environment Variable for GOES Sounder Data on page 5).

Will Your System Be Running waitd?

If you wish to take advantage of TeraScan's new capability to implement automatic processing of data delivered from a remote acquisition system, you will need to set up parameters for **waitd** (see Setting waitd Parameters on page 6).

A Note About TeraVision

The System Administrator should check the **.terascan/tvis.res** file in each user account to verify that it is version 1.13 or later (look at the first line in the file for the version number).

If the file is found to be a version earlier than 1.13, the file must be replaced, as follows:

1. Remove the file from the **.terascan** directory:

```
# rm .terascan/tvis.res
```

2. The next time the user runs and then exits TeraVision, a new **tvis.res** file will automatically be created.

Upgrading from TeraScan 3.0

Most Previous Software Configuration Is Conserved

If you are upgrading to TeraScan 3.1 from TeraScan 3.0, the existing telemetry chains, pass table, data-capture schedule, and xtuser account on your system were automatically conserved during the installation process. Therefore you should have no need to redo or modify their configuration unless you are changing other aspects of your system in addition to the TeraScan 3.1 software upgrade.

Checking Your Software Configuration

You can, if you wish, use the Configuration Editor to verify that the telemetry chains, other hardware specifications, and the pass table are as they should be. You may also want to use TeraCapCon to check your data-capture schedule (for instructions, see the online *TeraCapCon User's Manual*; this manual is accessible from the TeraScan Launchpad.)

Resetting TeraPGS Directory Environment Variables in tscan.login

After upgrading to TeraScan 3.1, the settings for the TeraPGS environment variables were not saved. You will therefore need to reset TeraPGS environment variables for the directories in **$PASSDIR/tscan.login**.

To set up environment variables for the TeraPGS directories see Setting Up TeraPGS Directories and their Environment Variables on page 3.

Will Your System Be Processing GOES Sounder Data?

If your system will be processing GOES Sounder data, you will need to set an environment variable for the ring buffer file that stores the incoming data (see Setting an Environment Variable for GOES Sounder Data on page 5).

Will Your System Be Running waitd?

If you wish to take advantage of TeraScan's new capability to implement automatic processing of data delivered from a remote acquisition system, you will need to set up parameters for **waitd** (see Setting waitd Parameters on page 6).